

# **SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR THE LAKE OKEECHOBEE REGULATION SCHEDULE**

## **1. PROJECT PURPOSE AND NEED**

### **1.1. PROJECT AUTHORITY**

The original authority for this project was the Flood Control Act of 1948 (approved by Congress on June 30, 1948). It authorized the Central and Southern Florida Flood Control Project, which is a multipurpose project that provides flood control, water supply for municipal, industrial, and agricultural uses; prevention of salt water intrusion; water supply for Everglades National Park (ENP); recreation; and protection of fish and wildlife resources.

Authority to complete this study was granted under Section 310 of the 1990 Water Resources Development Act (WRDA) which reads in part:

“... (1) CENTRAL AND SOUTHERN FLORIDA (C&SF). The Chief of Engineers shall review the report of the Chief of Engineers on central and southern Florida, published as house Document 643, 80th Congress, 2nd Session, and other pertinent reports, with a view to determining whether modifications to the existing project are advisable at the present time due to significantly changed physical, biological, demographic, or economic conditions, with particular reference to modifying the project or its operation for improving the quality of the environment, improving protection of the aquifer, and improving the integrity, capability, and conservation of urban water supplies affected by the project or its operation.”

### **1.2. PROJECT LOCATION**

Lake Okeechobee is located in south central Florida, and occupies portions of, Glades, Hendry, Martin, Okeechobee, and Palm Beach Counties (Figure 1-1). Lake Okeechobee has an area of approximately 730 square miles with its approximate center near 26° 56' 55" north latitude and 80° 56' 34" west longitude. The area that may be affected by the proposed alternative lake regulation schedules includes much of south Florida beyond the bounds of Lake Okeechobee proper. For the purposes of this study it has been determined that substantive effects may be regional in nature and importance, but perhaps due to the restricted operational changes being proposed, are not limitless in scope and effect. Hydrologic modeling, using the South Florida Water Management Model (SFWMM), indicate that the southern Water Conservation Areas (WCAs), including WCA 3A below I-75 (Alligator Alley), WCA 2B, 3B, and the ENP are not significantly affected by the operational changes being proposed to the lake regulation schedule. The areas considered to be most affected and which shall receive the greatest scrutiny in terms of impact assessment is the lake itself, particularly within the littoral and marsh areas of the lake, and major downstream estuaries including the St. Lucie and Caloosahatchee Estuaries. To a lesser degree, other areas considered

to be affected are within the Everglades Agricultural Area (EAA), and in the northern WCAs, including WCA 3A north of I-75, WCA 2A, and the Arthur R. Marshall Loxahatchee National Wildlife Refuge (WCA 1). Figure 1-2 provides an overall image of the study area including its proximity within the central and south Florida ecosystem.

Part of the Okeechobee Waterway, the St. Lucie Canal is the main eastern flood control outlet for Lake Okeechobee. The St. Lucie Estuary is located within portions of both Martin and St. Lucie counties on the southeast coast of Florida. The two forks of the St. Lucie Estuary, the North Fork and South Fork, flow together near the Roosevelt Bridge at the City of Stuart, and then flow eastward approximately six miles to the Indian River Lagoon (IRL) and Atlantic Ocean at the St. Lucie Inlet.

The Caloosahatchee River is the only flood-control outlet leading west from Lake Okeechobee, part of the Okeechobee Waterway, and the only navigable passage between the Gulf of Mexico and the Atlantic Ocean. The river extends approximately 70 miles from Lake Okeechobee, through the Caloosahatchee Estuary, to the lower Charlotte Harbor Basin at San Carlos Bay. The Caloosahatchee River passes through parts of Glades, Hendry, and Lee counties.

The EAA, located south of Lake Okeechobee within eastern Hendry and western Palm Beach counties, encompasses an area totaling approximately 718,400 acres (1,122 square miles) of highly productive agricultural land comprised of rich organic peat or muck soils. A small portion of EAA mucklands is also found in western Martin County. The EAA is considered one of Florida's most important agricultural regions. The EAA extends south from Lake Okeechobee to the northern levee of WCA 3A. Its eastern boundary extends to the L-8 Canal. The L-1, L-2 and L-3 levees represent its westernmost limits.

The WCAs cover 1,372 square miles and are located south of Lake Okeechobee and the EAA. WCA 1, also known as the Arthur R. Marshall Loxahatchee National Wildlife Refuge, includes 227 square miles of Everglades wetland habitat. WCA 2, the smallest of the three WCAs, encompasses approximately 210 square miles. The area is divided into two cells by a levee constructed in 1961. The north cell, WCA 2A, covers 173 square miles, and the south cell, WCA 2B, covers 37 square miles. WCA 3, the largest of the WCAs covers an area of 915 square miles.

Figure 1.1

Figure 1.2

### **1.3. PROJECT NEED OR OPPORTUNITY**

The need for a new regulation schedule has been clearly established by the continued deterioration of Lake Okeechobee's littoral zone and both the Caloosahatchee and St. Lucie estuaries. Lake regulation schedules trigger various management activities according to different lake levels. As past experience has shown, the current regulation schedule, Water Supply and Environment (WSE), limits some releases from Lake Okeechobee during periods when water levels are high. Higher lake levels contribute to poor ecological conditions within the lake, and can potentially result in undesirable high volume releases to the estuaries.

### **1.4. AGENCY GOAL OR OBJECTIVE**

The agency goal is to implement a new regulation schedule that would improve the health of Lake Okeechobee and the St. Lucie and Caloosahatchee estuaries, while continuing to ensure public health and safety, and with minimal or no impact to the competing project (lake) purposes. Study objectives consistent with this goal have been determined as follows:

- a. Ensure public health and safety
- b. Manage Lake Okeechobee at optimal lake levels to allow recovery of the lake's environment and natural resources
- c. Reduce high regulatory releases to the estuaries
- d. Continue to meet Congressionally authorized project purposes including, flood control, water supply, navigation, fish and wildlife enhancement, and recreation

### **1.5. BACKGROUND AND RELATED ENVIRONMENTAL DOCUMENTS**

Lake Okeechobee benefits south Florida by storing large volumes of water during wet periods for subsequent environmental, urban and agricultural needs during dry periods. However, extended periods of high water levels in the lake have been identified as causing stress to the lake's littoral zone. In addition, south Florida's potential for heavy rains and hurricanes requires that water levels in the lake be carefully monitored to ensure that they do not rise to levels that would threaten the structural integrity of the Herbert Hoover Dike (HHD) surrounding Lake Okeechobee. Therefore, when water levels in the lake reach certain elevations designated by the regulation schedule, discharges are made through the major outlets to control excessive buildup of water in the lake. The timing and magnitude of these releases is not only important for preserving the flood protection of the region, but also for protecting natural habitats of downstream estuaries and the Everglades.

The WSE schedule was adopted as the official regulation schedule in July 2000 after an extensive multi-agency and multi-objective evaluation process (described in the Final EIS), led to a Record of Decision (ROD) signed in July 2000. The first releases made under WSE occurred in July 2002 (USACE, 2004). In the relatively short four-year period since releases began under WSE, the schedule demonstrated improved performance as compared with the previous regulation schedule (Run 25) although many weaknesses became evident. As the recent past has shown, the WSE regulation

schedule limits releases from Lake Okeechobee when water levels are high and during periods when the lake's littoral zone and estuaries would have benefited from such releases.

For example, the WSE schedule called for no releases to the estuaries during a long period from February to June 2003. During the same period, the schedule called for maximum practicable releases south to WCAs; however, releases were limited due to high WCA stages and limited treatment capacity in Stormwater Treatment Area (STA)-1 West. The Lake stage at the beginning of the 2003 wet season was about 14.6 ft., National Geodetic Vertical Datum of 1929 (NGVD). During August and September 2003, inflows pushed the lake stage up to 17.15 ft., NGVD. To regulate the high lake stage, large prolonged discharges to both estuaries were required. Public concern for the health of the lake and the downstream estuaries led to commitments by executive management of the U.S. Army Corps of Engineers (Corps) to re-examine the WSE regulation schedule.

The Corps initiated a multi-phase effort to improve the Lake Okeechobee regulation schedule (LORS). The first phase, which began in 2004, attempted to implement a modification to the schedule to increase the flexibility and opportunities to make releases when the lake stage is between the "no regulatory discharge" and "discharge maximum practicable" release zones. The Corps made the schedule modification as a temporary planned deviation referred to as the Classification Limit Adjustment (CLA), which was implemented to adjust classifications of hydrologic indicators and forecasts. An Environmental Assessment (EA) was prepared in December 2004, with a Finding of No Significant Impact (FONSI) signed on January 25, 2005 for the action. The intent of the CLA was to help lower above-average lake levels and to improve ecological conditions within Lake Okeechobee's littoral zone. However, long-term effects of the CLA could not be determined since the appropriate trigger conditions necessary to implement the deviation seldom occurred.

Phase 2 of the multi-phase effort to improve the regulation schedule began in July 2005, and is the current LORSS that has led to this draft Supplemental Environmental Impact Statement (SEIS). Phase 2 only takes into consideration operational changes to the regulation schedule.

Phase 3 efforts, expected to begin in 2007, will examine a new water regulation schedule based on the effects of the Comprehensive Everglades Restoration Plan (CERP) Band 1 projects and the Fast Track (Acceler8) projects. Band 1 is the group of priority CERP projects expected to be constructed by 2010. Projects include: C-111 Spreader, aquifer storage and recovery (ASR) Pilots, L-31 Seepage Pilot, C-44 Reservoir, EAA Reservoir, Picayune Strand, Hillsboro Site 1 Impoundment, Decompartmentalization, (Tamiami Trail, and Acme Basin B [Master Implementation Sequencing Plan {MISP}] 2005 at <http://www.evergladesplan.org>). The recommendation to adopt a new water regulation schedule should be viewed as one step in the longer process of developing a LORS that will take the CERP Band 1 projects into consideration. Adjusting the regulation schedule now changes the way the

system is operated, but the larger problems now existing in the system can only be solved by water storage on a regional scale which is being addressed by the CERP.

As a supplemental document, this SEIS incorporates by reference information contained in the Final EIS document (USACE, 1999) previously prepared by the Corps.

### **1.6. DECISIONS TO BE MADE**

The LORSS was initiated to address continued high lake levels, estuary ecosystem conditions, and lake ecology conditions that occurred during the 2003 to 2005 time period. At the forefront of the LORSS were the back-to-back historically significant hurricane seasons of 2004 and 2005, the recognized integrity issues of HHD, and the potential danger that any hurricane season poses for the people relying upon the protection provided by HHD. Years 2004 and 2005 are ranked eighth and ninth for Lake Okeechobee's highest net inflow during the wet season (June-October) since 1914.

In light of the State's independent review report released in April 2006, which evaluated the structural integrity of the HHD, a great deal of public and media attention has been focused on the HHD issue. The State's independent report essentially validated the Corps previous findings from 1998 that the HHD is in need of rehabilitation (USACE, 1998). In response to the Corps findings back in 1998, a rehabilitation plan was developed and approved in 2000, and implementation of that plan is currently underway. After the State's independent report was released, the Corps received a letter of concern from the Governor of Florida (pertinent correspondence, Appendix C). The Governor's concern is the potential failure of the dike and the effects it could have on the communities around Lake Okeechobee. While the Corps considers public health and safety as its highest priority, the recent attention given to the HHD stability issue underscores the importance of the implementation of the plan. Issues such as seepage, piping, and boils are exacerbated when the lake elevation approaches 18.5 ft., NGVD (USACE, 2005). As a result, the LORSS only considered alternatives that would allow the lake to be managed at a lower average level year-round compared to the WSE regulation schedule. To ensure the integrity of the HHD is maintained, the Corps eliminated alternatives that did not achieve zero or close-to-zero days above lake elevation 17.25 ft., NGVD. The 17.25 feet constraint was based on the schedule's ability to store rainfall and runoff anticipated from a storm event comparable to Hurricane Wilma in 2005 without having HHD integrity issues.

Other important considerations for this study were the environmental needs of Lake Okeechobee, the Caloosahatchee and St. Lucie estuaries, and the greater Everglades (including the WCAs). The work being performed for this study consists of identifying the effects (both beneficial and adverse) associated with the alternatives developed for the LORSS and the approved regulation schedule currently in place, WSE. Broadly, the effort involved:

- a. Identifying all environmental, fish and wildlife, cultural and recreational resources in the study area;

- b. Assessing the effects of the alternative regulation schedules on these resources;
- c. Quantifying impacts to the competing lake management objectives such as flood protection, water supply, water quality, recreation and navigation;
- d. Evaluating the socio-economic impacts associated with the alternative regulation schedules; and
- e. Preparing the required documentation including graphics to present the study's findings and recommendations.

### **1.7. PUBLIC CONCERNS**

Lake Okeechobee plays a very important role as a primary source of water supply for nearby urban areas, the Lake Okeechobee Service Areas (LOSA) and the EAA that lies to the immediate south of the lake. The lake also continues to grow in importance as a backup water supply source for the heavily populated, and still growing, urbanized areas of the Lower East Coast (LEC) of Florida. In its water resources management role, the Corps has always strived to balance the competing, and often conflicting, purposes and objectives of the regulation and operation of the Lake Okeechobee infrastructure. In recent years, due to heavy rainfall and numerous hurricanes, the lake stage has reached, and sometimes remained at, higher than normal levels, which frequently resulted in large, and sometimes prolonged, regulatory releases to the downstream estuaries. These high lake stages and large releases to the estuaries may be a contributing factor in the deterioration of the lake's littoral zone and the estuarine ecosystems. Through numerous public meetings and coordination, local officials, residents, and environmental groups have expressed their concern over this deterioration and are looking to the Corps to resolve the problem. Environmentalists and scientists within the environmental community are strongly advocating for lowering the lake levels and reducing the large releases to the estuaries. With these concerns in mind, this study was implemented as an intermediate step to try and resolve these issues solely through operational modifications. In the future, as mentioned previously, Phase 3 of this effort will examine a new regulation schedule based on the effects of the CERP Band 1 projects that are expected to be initiated in 2010.

### **1.8. SCOPING AND ISSUES**

#### **1.8.1. ISSUES EVALUATED IN DETAIL**

The following issues were identified during scoping and by the preparers of this SEIS to be relevant to the proposed action and appropriate for detailed evaluation:

- Public health and safety
- Flood control
- Water supply
- Impacts to the Lake, Everglades and estuarine biota
- Endangered and threatened species
- Water quality
- Navigation

### 1.8.2. ISSUES ELIMINATED FROM DETAILED ANALYSIS

The following issues were not considered important or relevant to the proposed action based on scoping and the professional judgment of the preparers of this SEIS:

- Historic properties
- Air quality
- Noise pollution
- Hazardous, toxic and radioactive waste (HTRW)

## 1.9. PERMITS, LICENSES, AND ENTITLEMENTS

### *Clean Water Act of 1972*

As the proposed action is strictly of an operational nature, and does not involve any construction activity, water quality certification from the State of Florida is not required. Furthermore, as there are no structural components contained in the proposed action and no dredge and fill operations being considered, a Section 404 (b) Evaluation is not appropriate.

### *Coastal Zone Management Act*

This action will be reviewed for consistency with the State's Coastal Zone Management Program, pursuant to the Coastal Zone Management Act (CZMA), 16 U.S.C., 1451-1464, as amended.